Applicant amends the Claims as follows:

1.   (Once Amended) A method for communicating a data stream, the method comprising the steps of,

generating a sequence of data symbols from the data stream,

precoding the sequence of data symbols into a sequence of precoded data symbols,

modulating the sequence of precoded data symbols into a continuous phase modulated signal,

transmitting the continuous phase modulated signal,

receiving the continuous phase modulated signal,

~~demodulating the continuous phase modulated signal into a received baseband signal,~~ and

filtering the ~~received baseband~~ continuous phase modulated signal into a sequence of filtered signals having absolute phase for indicating the sequence of data symbols.

2.   (Once Amended) The method of claim 1 further comprising the steps of ,

sampling the sequence of filtered signals into a sequence of sampled ~~signals~~ symbols, and

~~decoding~~ demodulating the sequence of sampled symbols ~~signals~~ into an estimated data stream.

3. (Once Amended) The method of claim 1 wherein,

the generating step comprises the steps of receiving the data stream of data bits, formatting the data stream into the sequence

of formatted data pulses as a sequence of data symbols within an M-ary symbol set,

the modulating step comprises the steps of Gaussian filtering and frequency modulating for generating the continuous phase modulated signal, the Gaussian filter step filters the precoded sequence of data symbols into pulse responses continuously accumulated over a finite memory time as a filter response, the Gaussian filtering step is defined by a bandwidth time product inversely defining the finite memory time, the frequency modulating step frequency modulates a carrier reference by the filter response by a modulation index for converting the filter response into the continuous phase modulated signal,

the ~~demodulating step is carrier demodulating step for~~ ~~demodulating the~~ continuous phase modulated signal <u>is up converted</u> <u>from baseband during the transmitting step and is down converted to</u> <u>baseband during the receiving step</u> using a local carrier ~~into the~~ ~~baseband signal, the carrier demodulating step further removes a~~ ~~carrier phase offset between the local carrier and the received~~ ~~continuous phase modulated signal~~, and

the filtering step is a matched filtering step for matched filtering of the received ~~baseband signal~~ continuous phase modulated signal into the filtered signal, the matched filtering is matched by pulse amplitude modulation representation to the Gaussian filtering step, the filtered signal has an absolute phase at a periodic sampling time for indicating the sequence of data symbols.

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1   4.(Twice Amended) The method of claim 3 wherein,

2   the modulation index is equal to a fraction selected from a

3   group consisting of 1/M and (1-1/M) fractions for the M-ary symbol

4   set where $M=2^k$ and k is an integer.

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6   5. (Twice Amended)   A method for communicating a data stream, the

7   method comprising the steps of,

8   generating a sequence of data symbols from the data stream by

9   formatting the data stream into the sequence of formatted data

10   pulses as a sequence of data symbols within a 2-ary symbol set,

11   precoding the sequence of data symbols into a sequence of

12   precoded data symbols,

13   Gaussian filtering the precoded sequence of data symbols into

14   pulse responses continuously accumulated over a finite memory time

15   as a filter response, the Gaussian filtering is defined by a

16   bandwidth time product inversely defining the finite memory time,

17   frequency modulating a carrier reference by the filter

18   response by a modulation index for converting the filter response

19   into a continuous phase modulated signal,

20   ~~demodulating the continuous phase modulated signal by a local~~

21   ~~carrier and by a carrier phase offset into a received baseband~~

22   ~~signal,~~ and

23   matched filtering the received ~~baseband signal~~ continuos phase

24   modulation signal into a filtered signal, the matched filtering is

25   matched by pulse amplitude modulation representation to the

26   Gaussian filtering, the filtered signal has an absolute phase at a

27   periodic sampling time for indicating the sequence of data symbols.

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11. (Twice Amended) A method for communicating a data stream, the method comprising the steps of,

generating a sequence of data symbols from the data stream by formatting the data stream into the sequence of formatted data pulses as a sequence of data symbols within an 4-ary symbol set,

precoding the sequence of data symbols into a sequence of precoded data symbols,

Gaussian filtering the precoded sequence of data symbols into pulse responses continuously accumulated over a finite memory time as a filter response, the Gaussian filtering is defined by a bandwidth time product inversely defining the finite memory time,

frequency modulating a carrier reference by the filter response by a modulation index for converting the filter response into a continuous phase modulated signal,

~~demodulating the continuous phase modulated signal by a local carrier and by a carrier phase offset into a received baseband signal, and~~

matched filtering the ~~received baseband signal~~ continuous phase modulated signal into a filtered signal, the matched filtering is matched by pulse amplitude modulation representation to the Gaussian filtering, the filtered signal has an absolute phase at a periodic sampling time for indicating the sequence of data symbols, and

demodulating the sequence of data symbols into an estimate of the data steam.

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1.   (Once Amended and Rewritten) A method for communicating a data stream, the method comprising the steps of,

    generating a sequence of data symbols from the data stream,

    precoding the sequence of data symbols into a sequence of precoded data symbols,

    modulating the sequence of precoded data symbols into a continuous phase modulated signal,

    transmitting the continuous phase modulated signal,

    receiving the continuous phase modulated signal, and

    filtering the continuous phase modulated signal into a sequence of filtered signals having absolute phase for indicating the sequence of data symbols.

2.   (Once Amended and Rewritten) The method of claim 1 further comprising the steps of ,

    sampling the sequence of filtered signals into a sequence of sampled signals, and

    demodulating the sequence of sampled signals into an estimated data stream.

/ / /

1 3. (Once Amended and Rewritten) The method of claim 1 wherein,

2   the generating step comprises the steps of receiving the data

3 stream of data bits, formatting the data stream into the sequence

4 of formatted data pulses as a sequence of data symbols within an M-

5 ary symbol set,

6   the modulating step comprises the steps of Gaussian filtering

7 and frequency modulating for generating the continuous phase

8 modulated signal, the Gaussian filter step filters the precoded

9 sequence of data symbols into pulse responses continuously

10 accumulated over a finite memory time as a filter response, the

11 Gaussian filtering step is defined by a bandwidth time product

12 inversely defining the finite memory time, the frequency modulating

13 step frequency modulates a carrier reference by the filter response

14 by a modulation index for converting the filter response into the

15 continuous phase modulated signal,

16   the continuous phase modulated signal is up converted from

17 baseband during the transmitting step and is down converted to

18 baseband during the receiving step using a local carrier, and

19   the filtering step is a matched filtering step for matched

20 filtering of the received continuous phase modulated signal into

21 the filtered signal, the matched filtering is matched by pulse

22 amplitude modulation representation to the Gaussian filtering step,

23 the filtered signal has an absolute phase at a periodic sampling

24 time for indicating the sequence of data symbols.

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1 4.(Twice Amended and Rewritten) The method of claim 3 wherein,

2   the modulation index is equal to a fraction selected from a

3 group consisting of 1/M and (1-1/M) fractions for the M-ary symbol

4 set where M=2^k and k is an integer.

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8 5. (Twice Amended and Rewritten)   A method for communicating a

9 data stream, the method comprising the steps of,

10   generating a sequence of data symbols from the data stream by

11 formatting the data stream into the sequence of formatted data

12 pulses as a sequence of data symbols within a 2-ary symbol set,

13   precoding the sequence of data symbols into a sequence of

14 precoded data symbols,

15   Gaussian filtering the precoded sequence of data symbols into

16 pulse responses continuously accumulated over a finite memory time

17 as a filter response, the Gaussian filtering is defined by a

18 bandwidth time product inversely defining the finite memory time,

19   frequency modulating a carrier reference by the filter

20 response by a modulation index for converting the filter response

21 into a continuous phase modulated signal, and

22   matched filtering the received continuos phase modulation

23 signal into a filtered signal, the matched filtering is matched by

24 pulse amplitude modulation representation to the Gaussian

25 filtering, the filtered signal has an absolute phase at a periodic

26 sampling time for indicating the sequence of data symbols.

27

28 ///

11. (Twice Amended and Rewritten) A method for communicating a data stream, the method comprising the steps of,

generating a sequence of data symbols from the data stream by formatting the data stream into the sequence of formatted data pulses as a sequence of data symbols within a 4-ary symbol set,

precoding the sequence of data symbols into a sequence of precoded data symbols,

Gaussian filtering the precoded sequence of data symbols into pulse responses continuously accumulated over a finite memory time as a filter response, the Gaussian filtering is defined by a bandwidth time product inversely defining the finite memory time,

frequency modulating a carrier reference by the filter response by a modulation index for converting the filter response into a continuous phase modulated signal,

matched filtering the continuous phase modulated signal into a filtered signal, the matched filtering is matched by pulse amplitude modulation representation to the Gaussian filtering, the filtered signal has an absolute phase at a periodic sampling time for indicating the sequence of data symbols, and

demodulating the sequence of data symbols into an estimate of the data steam.

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